We claim:

1. An assembly verification method, comprising the steps of:

    (a) positioning within an inspection area a device that is constructed of two or more components assembled to one another two or more of said components of said device are inspection components relative positions and/or orientations of which are to be determined;

    (b) causing an inspection camera that is oriented in such a manner that a line of site of said inspection camera extends toward said inspection area to take a picture of said device;

    (c) generating either a two-dimensional image of said device or electronic data which has encoded within it a two-dimensional image of said device;

    (d) locating within said two-dimensional image of said device or said electronic data, which has encoded within it a two-dimensional image of said device, predetermined locating features of two or more of said inspection components of said device and determining positions and/or orientations of said predetermined locating features; and

    (e) calculating relative positions and/or orientations of said two or more inspection components based upon said determined positions and/or orientations of said predetermined locating features.

2. The assembly verification method of Claim 1, further comprising the step of:

    (a) calculating one or more position errors and/or orientation errors between inspection components of said device by subtracting from said calculated relative positions and/or orientations of said inspection components preferred relative positions and/or orientations of said inspection components.

3. The assembly verification method of Claim 2, further comprising the step of:

    (a) recording on paper or in some machine readable medium data values calculated in said assembly verification method such as relative positions, relative orientations, position

errors, and/or orientation errors of said inspection components in order that said data values, which are recorded, may be retrieved at a later time and/or place.

4. The assembly verification method of Claim 3, wherein:

   (a) said device that is positioned within said inspection area has a unique identifier code assigned to it and an identifier tag attached to it that has said unique identifier code encoded upon or within said identifier tag; and

   (b) wherein said assembly verification method further comprises the step of recording said unique identifier in a linked manner with said data values that are recorded either on paper or in machine readable medium for future retrieval whereby recordation of said unique identifier code in such a linked manner with said data values that are recorded enables an individual to quickly and easily locate data values that correspond to said device.

5. The assembly verification method of Claim 4, wherein:

   (a) said inspection camera is communicatively linked to an inspection area computer processor;

   (b) said step of generating either a two-dimensional image of said device or electronic data, within which is encoded a two-dimensional image of said device, more specifically comprises the step of said inspection camera generating electronic data within which a two-dimensional image of said device is encoded;

   (c) said assembly verification method further comprises the step of transferring said electronic data from said inspection camera to said inspection area computer processor;

   (d) said step of locating said predetermined locating features within said electronic data, within which is encoded a two-dimensional image of said device, is executed by said inspection area computer processor;

   (e) said step of determining positions and/or orientations of said predetermined locating features is executed by said inspection area computer processor;

(f) said step of calculating relative positions and/or orientations of said two or more inspection components based upon said positions and orientations of said predetermined locating features is executed by said inspection area computer processor;

(g) said step of calculating one or more position errors and/or orientation errors between inspection components of said device is executed by said inspection area computer processor; and

(h) said step of recording on paper or in some machine readable medium data values calculated in said assembly verification method such as relative positions, relative orientations, position errors, and/or orientation errors is executed by said inspection area computer processor and said data values are recorded in computer memory.

6. The assembly verification method of Claim 5, wherein:

(a) said inspection area computer processor is communicatively linked to an inspection area computer display screen and/or an inspection area computer printer; and

(b) said assembly verification method further comprises the step(s) of displaying upon said inspection area computer screen and/or causing said inspection area computer printer to printout one or more of said data values for said device.

7. The assembly verification method of Claim 6, wherein:

(a) said step of recording said unique identifier in a linked manner with said data values more specifically comprises the steps of:

- scanning with a bar code scanner that is communicatively linked to said inspection area computer processor a bar code that is displayed upon said identifier tag that is attached to said device and that has said unique identifier of said device encoded within it;
- transferring electronic data that has said unique identifier of said device encoded within it to said inspection area computer processor; and

- said inspection area computer processor storing said unique identifier associated with said device in computer memory in a linked manner with said data values associated with said device.

8. The assembly verification method of Claim 7, wherein:

   (a) said assembly verification method further comprises a step of adjusting relative positions and/or relative orientations of said inspection components of said device based upon said data values which include relative positions, relative orientations, position errors, and/or orientation errors of said inspection components of said device.

9. The assembly verification method of Claim 8, wherein:

   (a) said step of adjusting relative positions and/or relative orientations of said inspection components is executed at a rework area distant from said inspection area.

10. The assembly verification method of Claim 9, wherein:

   (a) said inspection verification method further comprises a step of retrieving said data values for said device at said rework area prior to adjusting relative positions and/or relative orientations of said inspection components;

   (b) said step of retrieving said data values for said device at said rework area more specifically comprises the steps of:

      - utilizing a rework area computer processor to retrieve from computer memory said data values; and
      - causing said data values to be displayed upon a rework area computer display screen, which is communicatively linked to said rework area computer processor, and/or causing said data values to be printed by a rework area computer printer, which is communicatively linked to said rework area computer processor.

11. The assembly verification method of Claim 10, wherein:

(a) said device that is positioned within said inspection area is a vehicle or a subsystem thereof.

12. The assembly verification method of Claim 11, wherein:

(a) said device vehicle or subsystem thereof that is positioned in said inspection area is more specifically a fully or partially assembled chassis which comprises a frame ladder to which an axle is attached;

(b) said frame ladder comprises two frame rails that extend approximately parallel to one another and a plurality of crossmember that extend between said frame rails;

(c) said axle is mounted to said frame ladder in such an orientation such that said axle extend approximately perpendicular to said frame rails;

(d) said inspection components of said chassis include said axle and said frame rails;

(e) said predetermined locating features of said axle are center points of ends of said axle;

(f) said predetermined locating features of said frame rails include outer edges of said frame rails;

(g) said step of calculating relative positions and/or orientations of said inspection components comprises the steps of:

- locating within said two-dimensional image of said chassis or said electronic data, within which is encoded a two-dimensional image of said chassis, said center points of said ends of said axle;
- calculating an orientation of an axle centerline that passes through said center points of said ends of said axle;
- locating within said two-dimensional image of said chassis or said electronic data, within which is encoded a two-dimensional image of said chassis, said outer edges of said frame rails;

- calculating an orientation of a frame ladder centerline by fitting a line to a set of points disposed equidistant from said outer edges of said frame rails; and
- calculating an angle between said axle centerline and said frame ladder centerline.

13. The assembly verification method of Claim 2, wherein:

(a) said assembly verification method more specifically comprises a series of steps executed in sequence and repeated in rapid succession, said sequence of steps comprising:

- said inspection camera taking a picture of said device;
- said inspection camera generating electronic data, within which a two-dimensional image of said device is encoded;
- transferring said electronic data from said inspection camera to an inspection area computer processor, to which said inspection camera is communicatively linked;
- said inspection area computer processor locating said predetermined locating features within said electronic data within which is encoded a two-dimensional image of said device;
- said inspection area computer processor determining positions and/or orientations of said predetermined locating features;
- said inspection area computer processor calculating relative positions and/or orientations of said two or more inspection components based upon said positions and orientations of said predetermined locating features.

14. The assembly verification method of Claim 13, wherein:

(a) said series of steps that is executed in sequence is repeated multiple times per minute.

15. The assembly verification method of Claim 14, wherein:

(a) said series of steps that is executed in sequence and is repeated multiple times per minute further comprise the step of:

- said inspection area computer processor causing said relative positions and/or orientations of said inspection components of said device to be displayed upon an inspection area computer display screen which is communicatively linked to said inspection area computer processor.

16. The assembly verification method of Claim 15, wherein:

(a) said series of steps that is executed in sequence and is repeated multiple times per minute further comprise the steps of:

- after said step of calculating said relative positions and/or relative orientations of said inspection components of said device said inspection area computer calculating position errors and/or orientation errors of said inspection components by subtracting from said relative positions and/or relative orientations of said inspection components preferred locations and/or orientations of said inspection components of said device; and
- said inspection area computer processor causing said position errors and/or orientation errors to be displayed upon an inspection area computer display screen which is communicatively linked to said inspection area computer processor.

17. The assembly verification method of Claim 1, wherein:

(a) said inspection camera is communicatively linked to an inspection area computer processor;

(b) said step of generating either a two-dimensional image of said device or electronic data within which is encoded a two-dimensional image of said device, more specifically comprises the step of said inspection camera generating electronic data within which a two-dimensional image of said device is encoded;

(c) said assembly verification method further comprises the step of transferring said electronic data from said inspection camera to said inspection area computer processor;

(d) said step of locating said predetermined locating features within said electronic data, within which is encoded a two-dimensional image of said device, is executed by said inspection area computer processor;

(e) said step of determining positions and/or orientations of said predetermined locating features is executed by said inspection area computer processor;

(f) said step of calculating relative positions and/or orientations of said two or more inspection components based upon said positions and orientations of said predetermined locating features is executed by said inspection area computer processor; and

(g) said step of calculating one or more position errors and/or orientation errors between inspection components of said device is executed by said inspection area computer processor.

18. The assembly verification method of Claim 17, wherein:

(a) said device that is positioned within said inspection area is a vehicle or a subsystem thereof.

19. The assembly verification method of Claim 18, wherein:

(a) said vehicle or subsystem thereof that is positioned in said inspection area is more specifically a fully or partially assembled chassis that comprises a frame ladder to which an axle is attached;

(b) said frame ladder comprises two frame rails that extend approximately parallel to one another and a plurality of crossmember that extend between said frame rails;

(c) said axle is mounted to said frame ladder in such an orientation such that said axle extend approximately perpendicular to said frame rails;

(d) said inspection components of said chassis include said axle and said frame rails;

(e) said predetermined locating features of said axle are center points of ends of said axle;

(f) said predetermined locating features of said frame rails include outer edges of said frame rails;

(g) said step of calculating relative positions and/or orientations of said inspection components comprises the steps of:

- locating within said two-dimensional image of said chassis or said electronic data, within which is encoded a two-dimensional image of said chassis, said center points of said ends of said axle;
- calculating an orientation of an axle centerline that passes through said center points of said ends of said axle;
- locating within said two-dimensional image of said chassis or said electronic data, within which is encoded a two-dimensional image of said chassis, said outer edges of said frame rails;
- calculating an orientation of a frame ladder centerline by fitting a line to a set of points disposed equidistant from said outer edges of said frame rails; and
- calculating an angle between said axle centerline and said frame ladder centerline.

20. A computer program for an inspection area computer processor of an inspection system, said computer program comprising:

(a) a computer useable medium having computer readable program code means embodied in said medium for causing the inspection area computer processor to perform the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled device encoded within it, predetermined locating features of two or more inspection components of the device;

- calculating relative positions and/or orientations of the two or more inspection components of the device.

21. The computer program of Claim 20, wherein:

(a) said computer program further causes the inspection area computer processor to perform the step of:

- calculating one or more position errors and/or orientation errors between the inspection components of the device by subtracting from the calculated relative positions and/or orientations of the inspection components preferred relative positions and/or orientations of the inspection components.

22. The computer program of Claim 21, wherein:

(a) said computer program further causes the inspection area computer processor to perform the steps of:

- causing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors to be displayed upon an inspection area computer display screen to which the inspection area computer processor is communicatively linked.

23. The computer program of Claim 22, wherein:

(a) said step of locating two or more predetermined locating features of the inspection components more specifically comprises the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled chassis of a vehicle encoded within it, center points of ends of an axle which is part of the chassis; and
- locating within the electronic data, which has a two-dimensional image of a fully or partially assembled chassis encoded within it, outer edges of frame rails of the chassis;

(b) said step of calculating relative positions and/or orientations of the two or more inspection components of the device more specifically comprises the steps of:

- calculating an orientation of an axle centerline which is defined as being the line that passes through the center points of the ends of the axle;
- calculating an orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis;
- calculating an angle between said axle centerline and said frame ladder centerline;

(c) said step of calculating one or more position errors and/or orientation errors between the inspection components of the device more specifically comprises the step of:

- calculating an orientation error of said axle centerline relative to said frame ladder centerline by subtracting from the angle between the axle centerline and the frame ladder centerline 90 degrees, which is a preferred orientation of the axle centerline relative to the frame ladder centerline; and

(d) said step of causing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors to be displayed upon an inspection area computer display screen, to which the inspection area computer processor is communicatively linked, more specifically comprises the step of:

- causing the angle between the axle centerline and the frame ladder centerline and/or the orientation error of the axle centerline relative

to the frame ladder centerline to be displayed upon an inspection area computer display screen to which the inspection area computer processor is communicatively linked.

24. The computer program of Claim 20, wherein:

(a) said step of locating two or more predetermined locating features of the inspection components more specifically comprises the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled chassis of a vehicle encoded within it, center points of ends of an axle which is part of the chassis; and
- locating within the electronic data, which has a two-dimensional image of a fully or partially assembled chassis encoded within it, outer edges of frame rails of the chassis;

(b) said step of calculating relative positions and/or orientations of the two or more inspection components of the device more specifically comprises the steps of:

- calculating an orientation of an axle centerline which is defined as being the line that passes through the center points of the ends of the axle;
- calculating an orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis; and
- calculating an angle between said axle centerline and said frame ladder centerline.

25. A computer program for an inspection area computer processor of an inspection system, said computer program comprising:

(a) a computer useable medium having computer readable program code means embodied in said medium for causing the inspection area computer processor to rapidly and sequentially repeat the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled device encoded within it, predetermined locating features of two or more inspection components of the device;
- calculating relative positions and/or relative orientations between the two or more inspection components of the device;
- causing one or more calculated relative positions and/or calculated relative orientations of the inspection components to be displayed upon an inspection area computer display screen to which the inspection area computer processor is communicatively linked.

26. The computer program of Claim 25, wherein:

(a) said computer program causes the inspection area computer processor to repeat said sequentially and repeatedly executed steps multiple times per minute.

27. The computer program of Claim 26, wherein:

(a) said step of locating two or more predetermined locating features of the inspection components more specifically comprises the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled chassis of a vehicle encoded within it, center points of ends of an axle which is part of the chassis; and
- locating within the electronic data, which has a two-dimensional image of a fully or partially assembled chassis encoded within it, outer edges of frame rails of the chassis;

(b) said step of calculating relative positions and/or orientations of the two or more inspection components of the device more specifically comprises the steps of:

- calculating an orientation of an axle centerline which is defined as being the line that passes through the center points of the ends of the axle;
- calculating a position and orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis;
- calculating an angle between said axle centerline and said frame ladder centerline; and

(c) said step of causing one or more of the calculated relative positions and/or calculated relative orientations to be displayed upon an inspection area computer display screen, to which the inspection area computer processor is communicatively linked, more specifically comprises the step of:

- causing the angle between the axle centerline and the frame ladder centerline to be displayed upon an inspection area computer display screen to which the inspection area computer processor is communicatively linked.

28. A computer program for an inspection area computer processor of an inspection system, said computer program comprising:

(a) a computer useable medium having computer readable program code means embodied in said medium for causing the inspection area computer processor to rapidly and sequentially repeat the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled device encoded within it, predetermined locating features of two or more inspection components of the device;
- calculating one or more relative positions and/or relative orientations of the two or more inspection components of the device;

- calculating one or more orientation errors and/or position errors of the inspection components of the device by subtracting from calculated relative positions and/or calculated relative orientations preferred relative positions and/or preferred relative orientations; and
- causing one or more calculated relative positions, calculated relative orientations, calculated position errors, and/or calculated orientation errors of the inspection components of the device to be displayed upon an inspection area computer display screen to which the inspection area computer processor is communicatively linked.

29. The computer program of Claim 28, wherein:

(a) said computer program causes the inspection area computer processor to repeat said sequentially and repeatedly executed steps multiple times per minute.

30. The computer program of Claim 29, wherein:

(a) said step of locating two or more predetermined locating features of the inspection components more specifically comprises the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled chassis of a vehicle encoded within it, center points of ends of an axle which is part of the chassis; and
- locating within the electronic data, which has a two-dimensional image of a fully or partially assembled chassis encoded within it, outer edges of frame rails of the chassis;

(b) said step of calculating relative positions and/or orientations of the two or more inspection components of the device more specifically comprises the steps of:

- calculating an orientation of an axle centerline which is defined as being the line that passes through the center points of the ends of the axle;
- calculating an orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis;
- calculating an angle between said axle centerline and said frame ladder centerline;

(c) said step of calculating one or more position errors and/or orientation errors between the inspection components of the device more specifically comprises the step of:

- calculating an orientation error of said axle center ine relative to said frame ladder centerline by subtracting from the angle between the axle centerline and the frame ladder centerline 90 degrees, which is a preferred orientation of the axle centerline relative to the frame ladder centerline; and

(d) said step of causing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors to be displayed upon an inspection area computer display screen, to which the inspection area computer processor is communicatively linked, more specifically comprises the step of:

- causing the angle between the axle centerline and the frame ladder centerline and/or the orientation error of the axle centerline relative to the frame ladder centerline to be displayed upon an inspection area computer display screen to which the inspection area computer processor is communicatively linked.

31. The computer program of Claim 20, wherein:

(a) said computer program further causes the inspection area computer processor to perform the step of:

- causing a computer printer, which is communicatively linked to the inspection area computer processor, to print the calculated relative positions and/or the calculated relative orientations of the inspection components.

32. The computer program of Claim 31, wherein:

(a) said computer program further causes said inspection area computer processor to perform the step of:

- causing the computer printer that is communicatively linked to the inspection area computer processor to print a unique identifier for the device in a manner such that the printed unique identifier is associated with the printed calculated relative positions and/or printed calculated relative orientations.

33. The computer program of Claim 32, wherein:

(a) said computer program further causes said inspection area computer processor to perform the steps of:

- when an individual scans a bar code symbol, which is affixed to the device and which has the unique identifier for the device encoded within it, receiving the unique identifier for the device from a bar code scanner that is communicatively linked to the inspection area computer processor and that the individual has used to scan the bar code symbol affixed to the device; and
- storing the unique identifier received from the bar code scanner at least temporarily in computer memory so that the unique identifier is available to the inspection area computer processor for said step of causing the computer printer to print the unique identifier.

34. The computer program of Claim 33, wherein:

(a) said step of locating two or more predetermined locating features of the inspection components more specifically comprises the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled chassis of a vehicle encoded within it, center points of ends of an axle which is part of the chassis; and
- locating within the electronic data, which has a two-dimensional image of a fully or partially assembled chassis encoded within it, outer edges of frame rails of the chassis;

(b) said step of calculating relative positions and/or orientations of the two or more inspection components of the device more specifically comprises the steps of:

- calculating an orientation of an axle centerline which is defined as being the line that passes through the center points of the ends of the axle;
- calculating an orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis;
- calculating an angle between said axle centerline and said frame ladder centerline;

(c) said step of causing a computer printer, which is communicatively linked to the inspection area computer processor, to print the calculated relative positions and/or the calculated relative orientations of the inspection components more specifically comprises the step of:

- causing the computer printer that is communicatively linked to the inspection area computer processor to print the angle between the axle centerline and the frame ladder centerline.

35. The computer program of Claim 20, wherein:

(a) said computer program further causes the inspection area computer processor to perform the step of:

- storing in computer memory the calculated relative positions and/or the calculated relative orientations of the inspection components.

36. The computer program of Claim 35, wherein:

(a) said computer program further causes said inspection area computer processor to perform the step of:

- storing in computer memory a unique identifier for the device in a manner such that the unique identifier stored in computer memory is linked with the printed calculated relative positions and/or printed calculated relative orientations.

37. The computer program of Claim 36, wherein:

(a) said computer program further causes said inspection area computer processor to perform the steps of:

- when an individual scans a bar code symbol, which is affixed to the device and which has the unique identifier for the device encoded within it, receiving the unique identifier for the device from a bar code scanner that is communicatively linked to the inspection area computer processor and that the individual has used to scan the bar code symbol affixed to the device; and
- storing the unique identifier received from the bar code scanner at least temporarily in computer memory so that the unique identifier is available to the inspection area computer processor for said step of storing the unique identifier in computer memory in a linked manner to the calculated relative positions and/or calculated relative orientations

which said computer program causes the inspection area computer processor to store in computer memory.

38. The computer program of Claim 33, wherein:

(a) said step of locating two or more predetermined locating features of the inspection components more specifically comprises the steps of:

- locating within electronic data, which has a two-dimensional image of a fully or partially assembled chassis of a vehicle encoded within it, center points of ends of an axle which is part of the chassis; and
- locating within the electronic data, which has a two-dimensional image of a fully or partially assembled chassis encoded within it, outer edges of frame rails of the chassis;

(b) said step of calculating relative positions and/or orientations of the two or more inspection components of the device more specifically comprises the steps of:

- calculating an orientation of an axle centerline which is defined as being the line that passes through the center points of the ends of the axle;
- calculating an orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis;
- calculating an angle between said axle centerline and said frame ladder centerline;

(c) said step of storing the calculated relative positions and/or the calculated relative orientations of the inspection components in computer memory more specifically comprises the step of:

- storing the angle between the axle centerline and the frame ladder centerline in computer memory.

39. An inspection system for facilitating inspection of a device by generating either a two-dimensional image of the device or electronic data that has a two-dimensional image of the device encoded within it and which inspection system is for use in determining relative positions, relative orientations, position errors, and/or orientations errors of inspection components of the device and which inspection components have predetermined locating features, said inspection system comprising:

    (a) an inspection area within which the device may be positioned; and
    (b) one or more inspection cameras stably supported in such a position that their line of site is directed toward said inspection area.

40. The inspection area of Claim 39, wherein:

    (a) one or more of said inspection cameras is/are digital electronic cameras that can generate electronic data with a two-dimensional image of the inspection area encoded within it; and
    (b) said inspection system further comprises an inspection area computer processor that is communicatively linked to said inspection cameras that are digital electronic cameras in such a manner that said inspection area computer processor may receive from said inspection cameras that are digital electronic cameras electronic data that has two-dimensional image(s) of the inspection area encoded within it.

41. The inspection system of Claim 40, further comprising:

    (a) a computer program embodied in computer readable medium, accessible by said inspection area computer processor, and operable to cause said inspection area computer processor to perform the steps of:
        - locating within electronic data, which has encoded within it a two-dimensional image of the device, the predetermined locating features of the two or more inspection components of the device;

- calculating relative positions and/or orientations of the two or more inspection components of the device.

42. The inspection system of Claim 41, wherein:

(a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- calculating one or more position errors and/or orientation errors between the inspection components of the device by subtracting from the calculated relative positions and/or orientations of the inspection components preferred relative positions and/or orientations of the inspection components.

43. The inspection system of Claim 42, wherein:

(a) said inspection system further comprises an inspection area computer display screen;
(b) said inspection area computer processor is communicatively linked to said inspection area computer display screen; and
(c) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- causing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors to be displayed upon said inspection area computer display screen to which the inspection area computer processor is communicatively linked.

44. The inspection system of Claim 43, wherein:

(a) said inspection area is part of an assembly line for assembly of the device.

45. The inspection system of Claim 44, further comprising:

    (a) a bar code scanner that is communicatively linked to said inspection area computer processor.

46. The inspection system of Claim 45, further comprising:

    (a) a rework area computer processor that is located adjacent a rework area, which is distant from said inspection area, and to which said inspection area computer processor is communicatively linked; and

    (b) one or both of a rework area computer display screen and a rework area computer printer communicatively linked to said rework area computer processor.

47. The inspection system of Claim 42, wherein:

    (a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

        - storing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors in computer memory.

48. An inspection system for facilitating inspection of a fully or partially assembled vehicle, which includes a frame ladder with frame rails that have outer edges and an axle which has center points of its ends, by generating electronic data that has a two-dimensional image of the fully or partially assembled vehicle, said inspection system comprising:

    (a) an inspection area within which the device may be positioned;

(b) one or more inspection cameras stably supported in a position above said inspection area and in an orientation such that a line of site of each of said inspection camera(s) extends from said inspection camera toward said inspection area;

(c) an inspection area computer processor that is communicatively linked to said inspection cameras that are digital electronic cameras in such a manner that said inspection area computer processor may receive from said inspection cameras electronic data that has two-dimensional image(s) of the inspection area encoded within it;

(d) a computer program embodied in computer readable medium, accessible by said inspection area computer processor, and operable to cause said inspection area computer processor to perform the steps of:

- locating within electronic data, which has a two-dimensional image of the fully or partially assembled vehicle encoded within it, the center points of the ends of the axle; and
- locating within the electronic data, which has a two-dimensional image of the fully or partially assembled vehicle encoded within it, the outer edges of the frame rails of the chassis;
- calculating an orientation of an axle centerline, which is defined as being the line that passes through the center points of the ends of the axle;
- calculating an orientation of a frame ladder centerline, which is a centerline of a frame ladder of the chassis, by fitting a line to points that are equidistant from the outer edges of the frame rails of the chassis; and
- calculating an angle between said axle centerline and said frame ladder centerline.

49. The inspection system of Claim 48, wherein:

(a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- calculating an orientation error of said axle centerline relative to said frame ladder centerline by subtracting from said angle between said axle centerline and said frame ladder centerline 90 degrees, which is a preferred orientation of said axle centerline relative to said frame ladder centerline, from said angle between said axle centerline and said frame ladder centerline.

50. The inspection system of Claim 49, wherein:

(a) said inspection system further comprises an inspection area computer display screen;
(b) said inspection area computer processor is communicatively linked to said inspection area computer display screen; and
(c) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- causing said angle between said axle centerline and/or said orientation error between said axle centerline and said frame ladder centerline to be displayed upon said inspection area computer display screen.

51. The inspection system of Claim 48, wherein:

(a) said inspection system further comprises an inspection area computer display screen;
(b) said inspection area computer processor is communicatively linked to said inspection area computer display screen; and
(c) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- causing said angle between said axle centerline and said frame ladder centerline to be displayed upon said inspection area computer display screen.

52. The inspection system of Claim 48, wherein:

(a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- storing said angle between said axle centerline and said frame ladder centerline to be stored in computer memory.

53. The inspection system of Claim 49, wherein:

(a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- storing said angle between said axle centerline and/or said orientation error between said axle centerline and said frame ladder centerline in computer memory.

54. An inspection system for facilitating inspection of a device that is disposed within an inspection area, by generating electronic data that has a two-dimensional image of the device encoded within it and which inspection system is for use in determining relative positions, relative orientations, position errors, and/or orientations errors of inspection components of the device and which inspection components have predetermined locating features, said inspection system comprising:

(a) one or more inspection cameras, which is/are digital electronic cameras that can generate electronic data with a two-dimensional image of the inspection area encoded within it; and

(b) an inspection area computer processor that is or can be communicatively linked to said inspection cameras that are digital electronic cameras in such a manner that said inspection area computer processor may receive, from said inspection cameras that are digital electronic cameras, electronic data which has two-dimensional image(s) of the inspection area encoded within it; and

(c) a computer program embodied in computer readable medium, accessible by said inspection area computer processor, and operable to cause said inspection area computer processor to perform the steps of: and

- locating within electronic data, which has encoded within it a two-dimensional image of the device, the predetermined locating features of the two or more inspection components of the device;
- calculating relative positions and/or orientations of the two or more inspection components of the device.

55. The inspection system of Claim 54, further comprising:

(a) a computer program embodied in computer readable medium, accessible by said inspection area computer processor, and operable to cause said inspection area computer processor to perform the steps of:

- locating within electronic data, which has encoded within it a two-dimensional image of the device, the predetermined locating features of the two or more inspection components of the device;
- calculating relative positions and/or orientations of the two or more inspection components of the device.

56. The inspection system of Claim 55, wherein:

(a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- calculating one or more position errors and/or orientation errors between the inspection components of the device by subtracting from the calculated relative positions and/or orientations of the inspection components preferred relative positions and/or orientations of the inspection components.

57. The inspection system of Claim 56, wherein:

(a) said inspection system further comprises an inspection area computer display screen;

(b) said inspection area computer processor is communicatively linked to said inspection area computer display screen; and

(c) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- causing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors to be displayed upon said inspection area computer display screen to which the inspection area computer processor is communicatively linked.

58. The inspection system of Claim 57, wherein:

(a) said inspection area is part of an assembly line for assembly of the device.

59. The inspection system of Claim 58, further comprising:

(a) a bar code scanner that is communicatively linked to said inspection area computer processor.

60. The inspection system of Claim 59, further comprising:

(a) a rework area computer processor that is located adjacent a rework area that is distant from said inspection area and to which said inspection area computer processor is communicatively linked; and

(b) one or both of a rework area computer display screen and a rework area computer printer communicatively linked to said rework area computer processor.

61. The inspection system of Claim 55, wherein:

(a) said inspection system further comprises an inspection area computer display screen;

(b) said inspection area computer processor is communicatively linked to said inspection area computer display screen; and

(c) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- causing one or more of the calculated relative positions and/or calculated relative orientations to be displayed upon said inspection area computer display screen to which the inspection area computer processor is communicatively linked.

62. The inspection system of Claim 56, wherein:

(a) said computer program is operable to cause said inspection area computer processor to perform the further step of:

- storing one or more of the calculated relative positions, calculated relative orientations, positions errors, and/or orientation errors to be displayed upon said inspection area computer display screen to which the inspection area computer processor is communicatively linked.